

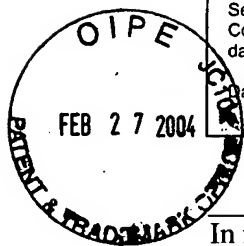


TRANSMITTAL FORM (to be used for all correspondence after initial filing)		Application Number	10/661,832
		Filing Date	September 12, 2003
		First Named Inventor	Qing Hu
		Art Unit	N/A
		Examiner Name	Not Yet Assigned
Total Number of Pages in This Submission	1	Attorney Docket Number	101328-0177

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Information Disclosure by Applicant (w/28 References attached) Return Postcard
<div>Remarks</div>		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	NUTTER MCCLENNEN & FISH LLP Reza Mollaaghababa
Signature	
Date	Feb. 25, 2004

Transmittal	
I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.	
Dated: Feb. 25, 2004	Signature: (Reza Mollaaghababa)



I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: Feb 25, 2004 Signature: Reza Mollaaghababa
(Reza Mollaaghababa)

Docket No.: 101328-0177
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Qing Hu, et al.

Application No.: 10/661,832

Filed: September 12, 2003

Art Unit: N/A

For: METAL WAVEGUIDES FOR MODE
CONFINEMENT IN TERAHERTZ LASERS
AND AMPLIFIERS

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned (37 CFR 1.97(b)(3)).

A copy of each reference on PTO/SB/08 is attached.

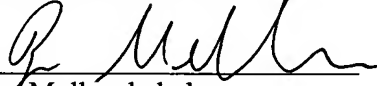
In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 141449, under Order No. 101328-0177. A duplicate copy of this paper is enclosed.

Dated: Feb. 25, 2004

Respectfully submitted,

By 

Reza Mollaaghababa

Registration No.: 43,810

NUTTER MCCLENNEN & FISH LLP

World Trade Center West

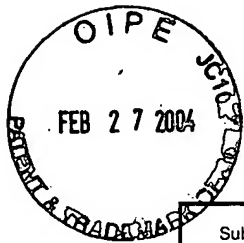
155 Seaport Boulevard

Boston, Massachusetts 02210-2604

(617) 439-2000

(617) 310-9000 (Fax)

Attorney for Applicant



PTO/SB/08a/b (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/B/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Application Number	10/661,832
				Filing Date	September 12, 2003
				First Named Inventor	Qing Hu
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	1	of	2	Attorney Docket Number	101328-0177

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	US-6,144,679	11-07-2000	Herman, et al.	
	AB	US-6,563,622-B2	05-13-2003	Mueller, et al.	
	ACE	US-5,936,989	08-10-1999	Capasso, et al.	
	AD	US-5,745,516	04-28-1998	Capasso, et al.	
	AE	US-5,509,025	04-16-1996	Capasso, et al.	
	AF	US-5,457,709	10-10-1995	Capasso, et al.	
	AG	US-6,188,477-B1	02-13-2001	Pu, et al.	
	AH	US-6,154,475	11-28-2000	Soref, et al.	
	AI	US-6,370,219-B1	04-09-2002	Peale	
	AJ	US-6,472,683-B1	10-29-2002	Li	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	MM-DD-YYYY			

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials [*]	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ²
	CA	Kazarinov and Suris, "Possibility of the amplification of electromagnetic waves in a semiconductor and superlattice," Sov. Phys. Semicond. 5, 707 (1971)		
	CB	Faist, et al., "Quantum cascade laser," Science 264, 477 (1994)		
	CC	Beck, et al., "Continuous Wave Operations of a Mid-infrared Semiconductor Laser at Room Temperature," Science 295, 301 (2002)		
	CD	Helm, et al., "Intersubband Emission from Semiconductor Superlattices Excited by Sequential Resonant Tunneling," Phys. Rev. Lett. 63, 74 (1989)		
	CE	Kohler, et al., "Terahertz semiconductor-heterostructure laser," Nature, 417, 156 (2002)		
	CF	Tredicucci et al. "High performance interminiband quantum cascade lasers with graded superlattice," Appl. Phys. Letter. 73, 2101 (1998)		
	CG	Rochat, et al., "Low-threshold terahertz quantum-cascade lasers," Appl. Phys. Lett. 81, 1381 (2002)		
	CH	Williams, et al., "3.4-THz quantum cascade laser based on Longitudinal-optical-phonon scattering for depopulation," Appl. Phys., Lett. 82, 1015 (2003). Also published in Virtual Journal of Nanoscale Science & Technology, 7(8) (2003)		
	CI	Unterrainer, et al., "Quantum cascade lasers with double metal-semiconductor waveguide resonators," Appl. Phys. Lett. 80, 3060 (2002)		
	CJ	Lee, et al., "Au-In bonding below the eutectic temperature," IEEE Trans. Comp, Hybrids, Manuf. Technol. 16, 311 (1993)		

Examiner Signature		Date Considered	
--------------------	--	-----------------	--



PTO/SB/08a/b (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

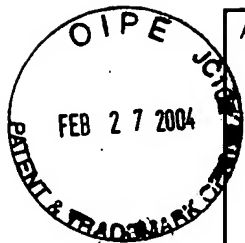
Substitute for form 1449A/B/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Application Number	10/661,832
				Filing Date	September 12, 2003
				First Named Inventor	Qing Hu
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	101328-0177
Sheet	2	of	2		

CK	Wang, et al., "Die bonding with Au/In isothermal solidification technique," J. Electron. Mat. 29, 443 (2000)	
CL	Wang, et al., "Stable and shallow PdIn ohmic contacts to n-GaAs," Appl. Phys. Lett. 56, 2129 (1990)	
CM	Troccoli, et al., "Mid-infrared (n = 7.4 um) quantum cascade laser amplifier for high power single-mode emission and improved beam quality," Appl. Phys. Lett. 80, 4103 (2002)	
CN	Mueller, et al., "2.5 THz Laser Local Oscillator for the EOS Chem 1 Satellite," Proceedings of the Ninth International Space Terahertz Technology Symposium, pp. 563-572, Pasadena, CA, March 17-19 (1998)	
CO	Williams, et al., "Narrow-linewidth terahertz intersubband emission from three-level systems," American Institute of Physics (1999)	
CP	Williams and Hu, "Optimized energy separation for phonon scattering in three-level terahertz intersubband lasers," American Institute of Physics (2001)	
CQ	Xu and Hu, "Electrically pumped tunable terahertz emitter based on intersubband transition," American Institute of Physics (1997)	
CR	Faist, et al., "Bound-to-Continuum and Two-Phonon Resonance Quantum-Cascade Lasers for High Duty Cycle, High-Temperature Operation," IEEE (2002)	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--



Application No. (if known): 10/661,832

Attorney Docket No.: 101328-0177

Certificate of Mailing Under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

on Feb. 25, 2004
Date



Signature

Reza Mollaaghababa
Typed or printed name of person signing Certificate

Note: Each paper must have its own certificate of mailing, or this certificate must identify each submitted paper.

IDS (Citation) by Applicant